



Dart Hawkesbury
1270 Aberdeen St Hawkesbury, ON K6A 1K7 Canada
Tel (613) 632-5200

Purchasing Receipts

PO No	Supplier	Line Item No	Rel No	Terms	Purchased Item	Description	For Part No	Project	Equipment ID	Order Qty	Due Date	Received Quantity	Accounting Job No	Container No	Status	Receive Date	Price/Unit	Aging Days	
PO039654	TWM001-VU	1	1	Net 30	M6061T6T0.500W.049	6061-T6 Round Tube .500 X.049W : MATERIAL: 6061-T6/T62/T6510/T6511 SEAMLESS TUBING AS PER WW-T-700/8 OR QQ-A-200/8 OR QQ-A-225/8 OR AMS 4080 OR AMS 40 82 OR AMS 4083 OR ASTM B210 OR ASTM B241 receive ft				100	4/26/2018	108		S065705	Stock	4/26/2018	\$ 2.91 / ft		
		2			M6061T6T0.625W.065	6061-T6 Round Tube .625 X.065W : MATERIAL: 6061-T6/T62/T6510/T6511 SEAMLESS TUBING AS PER WW-T-700/8 OR QQ-A-200/8 OR QQ-A-225/8 OR AMS 4080 OR AMS 40 82 OR AMS 4083 OR ASTM B210 OR ASTM B241 receive ft				24		24		S065706	Stock	4/26/2018	\$ 3.15 / ft		
		3			M4130NT0.500W.083	4130 Round Tube .500 X .083W : MATERIAL: AISI 4130N STEEL TUBING AS PER MIL-T-6736 OR AMS 6371/6360/6361/6362 6373/6374 receive ft				60		60		S065707	Stock	4/26/2018	\$ 4.00 / ft		
Total:										184		192							

Plex 4/26/2018 2:26 PM Dart.Dubois.Pascal



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER **PO039654**

Supplier: TWM001-VU
TW Metals
PO Box 933014
Atlanta, GA 31193-3014 USA
Phone: 585 768 5600
Fax: 585 768 5601

PO No: PO039654

PO Date: 4/19/18

Due Date: 4/26/18

**Purchase Order
Revision:**

Revision Date:

Ship-To Contact: Lavoie, Chantal
clavoie@dartaero.com

REVISED

Ship To: 1270 Aberdeen Street
Hawkesbury
ON
K6A 1K7 Canada
Phone: 613-632-5200

Via: Ground

Pymt Terms: Net 30

Freight Terms:

Special Comments:

Items

Line Item	Part	Supplier Part No	Description	Status	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (USD)	Extended Price
1	M6061T6T0.500W.049		6061-T6 Round Tube .500 X.049W : MATERIAL: 6061-T6/T62/T6510/T6511 SEAMLESS TUBING AS PER WW-T-700/8 OR QQ-A-200/8 OR QQ-A-225/8 OR AMS 4080 OR AMS 40 82 OR AMS 4083 OR ASTM B210 OR ASTM B241 receive ft	Firmed	4/26/18	100 ft	0 ft	100 ft	\$2.91/ft	\$291.00
2	M6061T6T0.625W.065		6061-T6 Round Tube .625 X.065W : MATERIAL: 6061-T6/T62/T6510/T6511 SEAMLESS TUBING AS PER WW-T-700/8 OR QQ-A-200/8 OR QQ-A-225/8 OR AMS 4080 OR AMS 40 82 OR AMS 4083 OR ASTM B210 OR ASTM B241 receive ft	Firmed	4/26/18	24 ft	0 ft	24 ft	\$3.1499/ft	\$75.60
3	M4130NT0.500W.083		4130 Round Tube .500 X .083W : MATERIAL: AISI 4130N STEEL TUBING AS PER MIL-T-6736 OR AMS 6371/6360/6361/6362 6373/6374 receive ft	Firmed	4/26/18	60 ft	0 ft	60 ft	\$4.00/ft	\$240.00
Grand Total:									\$606.60	

Order Notes

Order Notes

Procurement Quality Clauses

A005 right of entry
A012 chemical and physical test report
A016 personnel qualification
A017 raw material identification (as applicable)
A026 certification of material conformance
A041 quality management system
A042 dart notification by supplier
A043 retention of quality documents

A048 counterfeit parts avoidance, detection, mitigation and disposition program

A049 supplier awareness

Terms & Condition of Purchasing(Suppliers) and Procurement Quality Clauses are an integral part of our AS9100 requirements. To learn in detail, please visit www.dartaerospace.com for further explanation.

Plex 4/20/18 2:43 PM dart.lavoie.chantal



O'Neal High-Performance Metals Group



Packing Slip

ORDER NO.: 80927990

FROM: CHIC

PAGE 1

CUST NUMBER: 1203820 NET WGT: 34.388 REQ.DATE: 04/27/18 EARLY
SOLD TO: SHIP TO:
DART AEROSPACE LTD DART AEROSPACE LTD
1270 ABERDEEN ST 1270 ABERDEEN ST
HAWKESBURY ON HAWKESBURY ON
CANADA CN K6A 1K7 ONTARIO CANADA CN K6A 1K7

SALESPERSON: GLENN SCOTT SHIP BY: 04/24/18
TERMS: NET 30 DAYS VIA: COMMON CARRIER
F.O.B.: DESTINATION FREIGHT: PREPAID
CUST ORD NO.: PO039654 RELEASE NO.:
RECEIVING PHONE:

LINE ITEM DESCRIPTION WIDTH LENGTH
0001 42252 D6061-T6 1/2 OD X .049 WA 12 FT ML

CLN#	ORD QTY	INVOICE QTY	SHIPPED QTY	WT	PCS
	108.000 FT	108.000 FT	108.000 FT	8.813	9

** 1 TEST REPORTS REQUIRED **
** 1 CERTS REQUIRED **

ECCN: EAR99 Export License: NLR Expiration Date: 0/00/00
PO:49379016 HT:F002552620001 PC: 9 CUSTOMER QTY: UOM
MLT:UNITED STATES MFG:UNITED STATES SLB/CL:224582

0002 42558 D6061-T6 5/8 OD X .065 WA 12 FT ML

CLN#	ORD QTY	INVOICE QTY	SHIPPED QTY	WT	PCS
	24.000 FT	24.000 FT	24.000 FT	3.214	2

** 1 TEST REPORTS REQUIRED **
** 1 CERTS REQUIRED **

ECCN: EAR99 Export License: NLR Expiration Date: 0/00/00
PO:49385327 HT:F002636470001 PC: 2 CUSTOMER QTY: UOM
MLT:UNITED STATES MFG:UNITED STATES SLB/CL:225510

0003 32821 SMLSCD 4130 6736 1/2 X .083 WA 120.0000

CLN#	ORD QTY	INVOICE QTY	SHIPPED QTY	WT	PCS
	60.000 FT	60.500 FT	60.500 FT	22.361	6

** 1 TEST REPORTS REQUIRED **
** 1 CERTS REQUIRED **

ECCN: 9A991.d Export License: NLR Expiration Date: 0/00/00
PO:49371988 HT:259266 PC: 6 CUSTOMER QTY: UOM
MLT:GERMANY MFG:GERMANY SLB/CL:1639142

THANK YOU FOR THIS ORDER

TERMS AND CONDITIONS APPLICABLE TO THE SALE OF THESE
PRODUCTS ARE SET FORTH ON OUR WEBSITE FOR YOUR CAREFUL
REVIEW.
<http://www.twmetals.com/invoice-terms.html>



O'Neal High-Performance Metals Group



Packing Slip

ORDER NO.: 80927990

FROM: CHIC

PAGE 2

CUST NUMBER: 1203820	NET WGT: 34.388	REQ.DATE: 04/27/18	EARLY
SOLD TO:	SHIP TO:		
DART AEROSPACE LTD	DART AEROSPACE LTD		
1270 ABERDEEN ST	1270 ABERDEEN ST		
HAWKESBURY ON	HAWKESBURY ON		
CANADA	CN K6A 1K7	ONTARIO CANADA	CN K6A 1K7

SALESPERSON: GLENN SCOTT	SHIP BY: 04/24/18
TERMS: NET 30 DAYS	VIA: COMMON CARRIER
F.O.B.: DESTINATION	FREIGHT: PREPAID
CUST ORD NO.: PO039654	RELEASE NO.:
	RECEIVING PHONE:

LINE	ITEM DESCRIPTION	WIDTH	LENGTH
BROKERS	KUEHNE AND NAGEL LTD		

		PACK INFO				
AREA	TYPE OF PKG	PKGS	GRS WEIGHT	WIDTH	LENGTH	HGHT
YRC	REDDICRATE	1.000	27.000	4.0000	150.0000	4
YRC	CARTON	1.000	32.000	4.0000	126.0000	4
		2.000	59.000			

BY:
RT 000-

UNLOAD TYPE: NONE SPECIFIED

DATE SHIPPED _____

DATE FILLED _____

THANK YOU FOR THIS ORDER

TERMS AND CONDITIONS APPLICABLE TO THE SALE OF THESE PRODUCTS ARE SET FORTH ON OUR WEBSITE FOR YOUR CAREFUL REVIEW.
<http://www.twmetals.com/invoice-terms.html>



O'Neal High-Performance Metals Group



**Packing
Slip**

ORDER NO.: 80927990

FROM: CHIC

PAGE 3

CUST NUMBER: 1203820	NET WGT: 34.388	REQ.DATE: 04/27/18	EARLY
SOLD TO:	SHIP TO:		
DART AEROSPACE LTD	DART AEROSPACE LTD		
1270 ABERDEEN ST	1270 ABERDEEN ST		
HAWKESBURY ON	HAWKESBURY ON		
CANADA	CN K6A 1K7	ONTARIO CANADA	CN K6A 1K7
SALESPERSON: GLENN SCOTT	SHIP BY:	04/24/18	
TERMS: NET 30 DAYS	235 TUBEWAY		
F.O.B.: DESTINATION	CAROL STREAM	IL 60188	
CUST ORD NO.: PO039654			
VIA: COMMON CARRIER			
FREIGHT: PREPAID			
RELEASE NO.:			
RECEIVING PHONE:			

"TW Metals MSDS data is available on our web site at www.twmetals.com. MSDS data can be found under the Technical Resources Tab, Product Statistics & Data and the TW Metals MSDS's heading. If you do not have web site access you may telephone 610-458-1300 and we will mail or fax a copy of our current MSDS data to your location."

"CERTIFICATE OF CONFORMANCE"

"TW Metals certifies that the material supplied on this purchase order and contained in the heat/lot number referenced above has been manufactured, inspected, and tested in accordance with the material specification. These records are on file at TW Metals. Packaging material for shipments to Europe and China consists of manufactured wood products and complies with the European emergency measures for coniferous non-manufactured wood packing material"

Authorized Test Report Clerk

Date: 4/24/18

These commodities have been exported from the United States in accordance with the U.S. export control laws, export administrations regulations. Diversion contrary to U.S. law prohibited.

THANK YOU FOR THIS ORDER

TERMS AND CONDITIONS APPLICABLE TO THE SALE OF THESE PRODUCTS ARE SET FORTH ON OUR WEBSITE FOR YOUR CAREFUL REVIEW.
<http://www.twmetals.com/invoice-terms.html>

KAISER ALUMINUM

FABRICATED PRODUCTS

Best in Class

CERTIFIED TEST REPORT

<http://Online.KaiserAluminum.com>

KAISER ALUMINUM
FABRICATED PRODUCTS, LLC
6573 W. WILLIS ROAD
CHANDLER, AZ 85226

CUSTOMER PO NUMBER: M49379016-1		CUSTOMER PART NUMBER: 42252		PRODUCT DESCRIPTION: Drawn Seamless Tube/Pipe	
KAISER ORDER NUMBER: 224582	LINE ITEM: 001	SHIP DATE: 11/21/2017	KAISER LOT NUMBER: F00255262	ALLOY: 6061	TEMPER: T6
WEIGHT SHIPPED: 562.000 LB	QUANTITY: 576.000 PCS	B/L NUMBER: 227563	DIAM/DAF/THKNS: 	WIDTH: 	LENGTH: 12.000 FT
SHIP TO: TW METALS INC 235 WEST TUBEWAY DRIVE CAROL STREAM, IL 60188 USA			SOLD TO: TW METALS INC 760 CONSTITUTION DRIVE SUITE 204 EXTON, PA 19341 USA		

Actual Physical Properties

REFERENCE	DASH#	SAMPLE#	UTS (KSI)	YTS (KSI)	ELONG%	HARDNESS	CON%IACS	BEND
F00255262	0001	1	47.1	40.6	17.0	N/A	N/A	N/A
F00255262	0002	1	47.4	40.6	19.0	N/A	N/A	N/A

Chemical Composition (wt%), Aluminum Remainder

LIMITS	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Pb	Bi	Zr	Ea	Tot
Maximum	0.80	0.70	0.40	0.15	1.20	0.35	0.25	0.15	NA	NA	NA	0.05	0.15
Minimum	0.40	0.00	0.15	0.00	0.80	0.04	0.00	0.00	NA	NA	NA	0.00	0.00
D0676A	.59	.26	.23	.05	.99	.09	.04	.03	.00	.00	.00	.01	.02

Applicable Requirements:

Description: OD: 0.5000"; Wall: 0.0490"; Round @
AMS4082P AMS-WW-T-700/6C ASTM B210-12 WW-T-700/6F
WE TAKE EXCEPTION TO PARA. 5.2.1., Per AMS4082P, WAS NOT OILED.
This Product Complies to FAR BAA, DFARS BAA, FAR TAA
COMPLIES TO DIN EN 10204 JAN 2005
No Weld Repair. Mercury Free.



Miscellaneous Notes

MANUFACTURED IN USA MELTED IN USA
MATERIAL COMPLIES WITH FAR BAA (FAR 52.225-1, BUY AMERICAN ACT- SUPPLIES), DFARS BAA
(DFARS 252.225-7001 BUY AMERICAN ACT & BAL OF PAYMENTS PROG), AND FAR TAA (FAR 52.225-5
TRADE AGREEMENTS).

Plant Serial: 00026731
Kaiser Order Number: 224582
Line Item: 001



Best in Class

CERTIFIED TEST REPORT

<http://Online.KaiserAluminum.com>

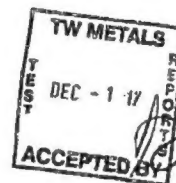
KAISER ALUMINUM
FABRICATED PRODUCTS, LLC
6573 W. WILLIS ROAD
CHANDLER, AZ 85226

CERTIFICATION

Kaiser Aluminum Fabricated Products, LLC ('Kaiser') hereby certifies that metal shipped under this order has been inspected and tested and found in conformance with the applicable specifications forming a part of the description set forth in Kaiser's sales acknowledgement form. Any warranty is limited to that shown on Kaiser's general terms & conditions of sale. Test reports are on file subject to examination.

Hans Kattentidt, Quality Manager

A handwritten signature in black ink, appearing to read "Hans Kattentidt", with a circular mark or stamp over the end of the signature.



Plant Serial: 00026731
Kaiser Order Number: 224582
Line Item: 001

KAISER ALUMINUM FABRICATED PRODUCTS

KAISER ALUMINUM
FABRICATED PRODUCTS, LLC
6573 W. WILLIS ROAD
CHANDLER, AZ 85226

CERTIFIED TEST REPORT

<http://Online.KaiserAluminum.com>

CUSTOMER PO NUMBER: M49385327-1		CUSTOMER PART NUMBER: 42558-144		PRODUCT DESCRIPTION: Drawn Seamless Tube/Pipe	
KAISER ORDER NUMBER: 225510	LINE ITEM: 001	SHIP DATE: 03/20/2018	KAISER LOT NUMBER: F00263647	ALLOY: 6061	TEMPER: T6
WEIGHT SHIPPED: 732.000 LB	QUANTITY: 454.000 PCS	B/L NUMBER: 228914	DIAM/DA/THKNS: 	WIDTH: 	LENGTH: 12.000 FT
SHIP TO: TW METALS INC 235 WEST TUBEWAY DRIVE CAROL STREAM, IL 60188 USA			SOLD TO: TW METALS INC 760 CONSTITUTION DRIVE SUITE 204 EXTON, PA 19341 USA		

Actual Physical Properties

REFERENCE	DASH#	SAMPLE#	UTS (KSI)	YTS (KSI)	ELONG%	HARDNESS	CON% IACS	BEND
F00263647	0001	0001	47.6	40.4	18.0	N/A	N/A	N/A
F00263647	0001	0002	47.6	41.1	18.0	N/A	N/A	N/A
F00263647	0002	0001	47.2	40.1	18.0	N/A	N/A	N/A
F00263647	0002	0002	47.4	41.2	19.5	N/A	N/A	N/A

Chemical Composition (wt%), Aluminum Remainder

LIMITS	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Pb	Bi	Zr	Ea	Tot
Maximum	0.80	0.70	0.40	0.15	1.20	0.35	0.25	0.15	NA	NA	NA	0.05	0.15
Minimum	0.40	0.00	0.15	0.00	0.80	0.04	0.00	0.00	NA	NA	NA	0.00	0.00
D21277	.61	.22	.22	.05	.94	.05	.04	.02	.00	.00	.00	.01	.02

Applicable Requirements:

Description: OD: 0.6250"; Wall: 0.0650"; Round @
AMS4082P AMS-WW-T-700/6C ASTM B210-12 WW-T-700/6F
WE TAKE EXCEPTION TO PARA. 5.2.1., Per AMS4082P, WAS NOT OILED.
This Product Complies to FAR BAA, DFARS BAA, FAR TAA
COMPLIES TO DIN EN 10204 JAN 2005
No Weld Repair. Mercury Free.



Miscellaneous Notes

MANUFACTURED IN USA MELTED IN USA
MATERIAL COMPLIES WITH FAR BAA (FAR 52.225-1, BUY AMERICAN ACT- SUPPLIES), DFARS BAA
(DFARS 252.225-7001 BUY AMERICAN ACT & BAL OF PAYMENTS PROG), AND FAR TAA (FAR 52.225-5
TRADE AGREEMENTS).

Plant Serial: 00027742
Kaiser Order Number: 225510
Line Item: 001

1867

KAISER
ALUMINUM
FABRICATED PRODUCTS

KAISER ALUMINUM
FABRICATED PRODUCTS, LLC
6573 W. WILLIS ROAD
CHANDLER, AZ 85226

CERTIFIED TEST REPORT

<http://Online.KaiserAluminum.com>

CERTIFICATION

Kaiser Aluminum Fabricated Products, LLC ('Kaiser') hereby certifies that metal shipped under this order has been inspected and tested and found in conformance with the applicable specifications forming a part of the description set forth in Kaiser's sales acknowledgement form. Any warranty is limited to that shown on Kaiser's general terms & conditions of sale. Test reports are on file subject to examination.

Hans Kattentidt, Quality Manager



AK

Benteler Steel/Tube GmbH
Postfach 13 40
33043 Paderborn
Deutschland
Tel.: +49.5254.81-0 Fax: +49.5254.13666

BENTELER

Steel/Tube

ABNAHMEPRÜFZEUGNIS EN 10204-3.1
INSPECTION CERTIFICATE EN 10204-3.1
CERTIFICAT DE RECEPTION EN 10204-3.1
EN 10204:2005-01

Benteler Steel/Tube GmbH · Postfach 1340 · 33043 Paderborn · Deutschland
TW Metals
The Aboretum, Suite 204
760 Constitution Drive
EXTON PA 19341
USA

Dokument-Nr.: 41-1037838/001/Z
Document No.:
No. du document:

Kunden-Bestell-Nr.: 46005343 TW M49371988
Purchase Order No.:
No. de commande du client:

Benteler Auftrags-Nr.: 1639142
Benteler Order No.:
No. de commande Benteler:

Versandanzeigen-Nr.: 4121432
Dispatch Note No.:
No. d'avis d'expédition:

Produkt: NAHTLOSE STAHLROHRE
Product: SEAMLESS STEEL TUBES
Produit: TUBES D'ACIER SANS SOUDURE

Hersteller: Warmrohrwerk/Ziehhäsel
Manufacturer: (DIN EN ISO 9001, ISO/TS 16949 CERTIFIED BY TÜV NORD CERT)
Producteur: (PED 2014/68/EU CERTIFIED BY TÜV NORD SYSTEMS)

Herstellerzeichen:
Manufacturer's brand:
Marque du producteur:

Stempel des Abnahmebeauftragten: WA
Stamp of the inspection representative:
Poinçon du contrôleur:

Stahlschmelzungsverfahren: ELEKTROSTAHL
Steelmaking process: ELECTRIC FURNACE
Procédé d'élaboration de l'acier: FOUR ELECTRIQUE

Lieferbedingungen: AMS-T-6736B-08 Type 1, ASTM-A 519-2006, MIL-T-6736B Type 1, AMS6360 Rev. M, AMS 2301K

Terms of delivery:
Conditions de livraison:

Maße - Toleranzen: AMS 2253E-83, Aircraft Type, Seamless, Cold Finished, straightness acc. to customer request

Dimensions-tolerances:
Dimensions-tolérances:

Stahlsorte: GRADE 4130

Steel grade:

Nuance d'acier:

Lieferzustand: Condition N

Delivery condition:

État de livraison:

Produktkennzeichnung:

Product marking: FSD: BENTELER AMS6360M-AMS-T-6736 B 1-MIL-T-6736 B 1-AMS 2301K 4130 Condition N HEAT-NO.
CD AQ S DIMENSIONS WA GERMANY

Marquage du produit:

AEZ = Ätzenbeschriftung, Etching ink marking, Gravure à l'encre · FK = Farbkennzeichnung, color marking, marquage par couleur · FS = Farbschablonierung, panty stenciling, marquage par peinture · FSD = Farbschablonierung, Color jet printer, Impression à jet d'encre de couleur · LK = Laserkennzeichnung, Laser marking, Marquage laser · PKE = Etikettenkennzeichnung, tag marking, marquage sur étiquette · PS = Prägestempel, de stamp, marquage par poinçonnage · TS = Trübschablonierung, Ink jet spray marking, imprimante à jet d'encre.



Benteler Steel/Tube GmbH
Postfach 13 40
33043 Paderborn
Deutschland
Tel.: +49.5254.81-0 Fax: +49.5254.13666

BENTELER
Steel/Tube

ABNAHMEPRÜFZEUGNIS EN 10204-3.1

INSPECTION CERTIFICATE EN 10204-3.1
CERTIFICAT DE RECEPTION EN 10204-3.1

Dokument-Nr.: 41-1037838/001/Z
Document No.:
No. du document:

Prüf-Nr.:
Inspection No.:
No. du certificat:

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Page:

Pos.	Stück	Maße	Gesamtlänge	Gewicht	Schmelzen-Nr.	Prüfdruck	Rohr-Nr.-Gruppe	Vielfachlängen
Item	Number	Dimensions	Length total	Weight	Heat No.	Test pressure	Tube number group	Multiple lengths
Poste	Nombre	Dimensions	Longueur totale	Poids	No. de coulée	Pression d'épreuve	Série de no. des tubes	Longueurs multiples
0006	137	0.500" O.D. * 0.083" WT 20 FT - 24 FT	2741,80	1019	259266			

Schmelzenanalyse [%] / Heat analysis [%] / Analyse sur coulée [%]

Pos.	Schmelzen-Nr.	C	SI	MN	P	S	CR	MO	NI	CU
Item	Heat No.									
Poste	No. de coulée									
0006	259266	0,310	0,220	0,52	0,005	0,002	0,87	0,17	0,07	0,09

Produktanalyse [%] / Product analysis [%] / Analyse sur produit [%]

Pos.	Schmelzen-Nr.	C	SI	MN	P	S	CR	MO	NI	CU
Item	Heat No.									
Poste	No. de coulée									
0006	259266	0,300	0,220	0,51	0,006	0,001	0,87	0,16	0,06	0,08

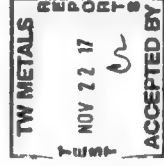
Prüfergebnisse / Test results / Résultats des essais

Die Rohre wurden zerstörungsfrei geprüft: The tubes are non destructive tested: Les tubes ont passé un essai non destructif:	ET-test: acc. to ASTM-A 450; ET - Test method: acc. to ASTM-E 309; for imperfections; ET-test: ET with rotating pancake coils; according to EN 10246-3; imperfections; Notch depth: 0,30 mm; notch width < = notch depth; notch length min. 2 x transducer width (max. 50 mm)	PASSED
--	---	--------

Augensichtkontrolle: Visual inspection: Examen visuel:	PASSED	Materialverwechslungsprüfung: Material conformity test: Vérification de la nuance:	PASSED	Maßkontrolle: Dimensions examination: Vérification des dimensions:	PASSED
--	--------	--	--------	--	--------

Ergebnisse der mechanischen Prüfung / Results of mechanical testing / Résultats des essais mécaniques

Die Probenahme erfolgte an Vielfachlängen.
The sampling was carried out on multiple lengths.
L'échantillonnage était réalisé aux longueurs multiples.



Benteler Steel/Tube GmbH
Postfach 13 40
33043 Paderborn
Deutschland
Tel.: +49.5254.81-0 Fax: +49.5254.13666

BENTELER
Steel/Tube

ABNAHMEPRÜFZEUGNIS EN 10204-3.1

INSPECTION CERTIFICATE EN 10204-3.1
CERTIFICAT DE RECEPTION EN 10204-3.1

41-1037838/001/Z

Dokument-Nr.:
Document No.:
No. du document:

Prüf-Nr.:
Inspection No.:
No. du certificat:

Blatt: 3 / 3

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Zugversuch längs bei RT, Vollprobe / Tensile test longitudinal at RT, Full section test specimen / Essai de traction longitudinale à TA, Eprouvette a section complete

Pos.	Proben-Nr.	Schmelzen-Nr.	Probenabmessung	Streckgrenze	Zugfestigkeit	Dehnung
Item	Specimen No.	Heat No.	Specimen dimensions	Yield strength	Tensile strength	Elongation
Poste	No. de l'éprouv.	No. de coulée	Dimensions de l'éprouv.	Limite élastique	Résistance à la traction	Allongement
Anforderungen			mm	Rp 0,2 %	Rm	A2"
Requirements				KSI	KSI	%
Exigences				MIN 75	MIN 95	MIN 12.00
	00001	259266	12,74 X 2,14	97	119	18,00
	00002	259266	12,74 X 2,14	97	120	20,00
	00003	259266	12,74 X 2,14	98	119	19,00
	00004	259266	12,74 X 2,14	97	119	20,00

Randentkohlung / Surface decarburization / Décarburation superficielle

acc. to AMS-6360, partial decarburization outside max. 0.014 in, partial decarburization inside max. 0.014 in, partial decarburization outside and inside max. 0.018 in, partial decarburization outside and inside max. 0.457 mm, without total decarburization; partial decarb. out. max.: 0,356 mm; partial decarb. ins. max.: 0,356 mm

Vermerk / Remark / Remarque

Certificate remarks: The steel grade corresponds to MIL-T-6736B, AMS 6360M, material free from mercury contamination, FAR BAA: 52.225-1 CANNOT COMPLY, DFARS BAA: 252.225-7001 CAN COMPLY, FAR TAA: 52.225-5 CAN COMPLY, No weld repair has been carried out, Country of origin of the material and heat: Germany, Aircraft quality steel acc. to AMS 2301K; see appendix page 1 of 1

Macroscopic examination: acc. to ASTM-E 381

Magnetic particle inspec.: acc. to AMS 2301K/ASTM-E 1444, on prematerial

Grain size: acc. to ASTM-E 112; Grain size and finer: 5; Grain size: Longitudinal structure micrography, on prematerial

Verkäufer(in) / Sales Personnel / Personne chargée : Mr Schwarz, Tel.: 05254 81-204311, Fax: 204391

Paderborn Schloß Neuhaus, 27.10.2017, TEL.: 05254.81-201767 FAX: 05254.81-201752

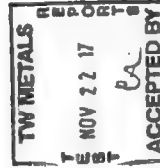
Abnahmebeauftragter
Inspection representative

Contrôleur

i. A. THOMAS GOLLAN / TEM

Es wird bestätigt, daß die gelieferten Erzeugnisse den techn. Lieferbedingungen des Auftrages entsprechen. Dieses Dokument wurde mittels EDV erstellt und ist ohne Unterschrift rechtsgültig.
We certify that the supplied products comply with the order specifications. This document was prepared by means of electronic data processing and is valid without signature.

Nous attestons que les produits livrés sont conformes aux stipulations de la commande. Ce document a été établi par traitement électronique de l'information et est valide sans signature.



C

Benteler Steel/Tube GmbH
Residenzstraße 1
33104 Paderborn
Germany
Tel.: 49.5254.81-0 Fax: 49.5254.13666

BENTELER
Steel/Tube

Abnahmeprüfzeugnis EN 10204-3.1 / Anhang
Inspection Certificate EN 10204.3.1 / appendix
Certificat de réception EN 10204-3.1 / appendice

Dokument-Nr.
Document No.:
No. de document

Blatt: von
Page: 1 of 1
Page: de

41-1037838/001/Z

259266

Halbzeuguntersuchung: Stahlsorte 4130 / **Semi finished product examination: grade 4130** / Produit semi-fini: nuance 4130

Schmelzen-Nr. Heat No. Coulée No.	Position Item Poste	Korngröße Grain size Grosseur de grain (ASTM-E 112)	Härbarkeit (min. Anforderungen) Hardenability (min. requirements) Trepabilité (exigence min.) (ASTM-A 255)		Magnetpulverprüfung Magnetic particle inspection Essai à la poudre magnétique (AMS 2301 K/ASTM- 1444)		Makroätzung Macrostructure test Essai de macrostructure (ASTM-E 381)	
			J(5/16") min. 35 HRC	J(8/16") min. 28 HRC	F max. 0,34	S max. 0,25	max. S 2	max. R 1 max. C 2
259266 Decarburization Depth	006	min. 5	37	30	0,020	0,015	S 2	R 1 C 2
		Outside 0,000 mm Inside 0,000 mm						

Der Stahl ist frei von Quecksilberverunreinigungen. / **The steel is free of mercury contamination.** / L'acier est libre des contaminations de mercure.

Paderborn Schloß Neuhaus, 27.10.2017
Tel.: (0)5254.81-201760 Fax: (0)5254.81-201752

Abnahmebeauftragter
Inspection representative
Contrôleur

Thomas Gollan

C

MATERIAL RECEIPT INSPECTION FORM

MATERIAL: M4130N to 500W.083
 DATE: APR 26 2018

PO / BATCH NO.: 039654/5065707

MATERIAL CERT REC'D: YES
 QUANTITY RECEIVED: 60
 QUANTITY INSPECTED: 60
 QUANTITY REJECTED: 0

THICKNESS ORDERED: W.083
 THICKNESS RECEIVED: W.083
 SHEET SIZE ORDERED: N/A
 SHEET SIZE RECEIVED: N/A

DESCRIPTION	NCR (Check Y/N)	COMMENTS
SURFACE DAMAGE	Y (N)	
CORRECT FINISH	(Y) N	
CORROSION	Y (N)	
CORRECT GRAIN DIRECTION	(Y) N	
CORRECT MATERIAL PER M-DRAWING	(Y) N	mil-t-6736
CORRECT THICKNESS	(Y) N	
PHOTO REQUIRED	Y (N)	
CORRECT REF # TO LINK CERT	(Y) N	Heat# 259266
CORRECT MATERIAL IDENTIFICATION	(Y) N	
CORRECT M# ON THE MATERIAL	(Y) N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y (N)	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y (N)	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

QC 18 INSPECTION	ENGINEERING SIGNOFF (if required)
INSPECTED BY: <u>DAS</u> <u>11</u> DATE: <u>9-89</u> <u>APR 26 2018</u>	SIGNED OFF BY: _____ DATE: _____

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

SPECIFICATION CONTROL DRAWING

PURCHASE MATERIAL: AISI 4130N SEAMLESS STEEL TUBING

SPECIFICATION: MIL-T-6736 OR AMS 6371, 6360, 6361, 6362, 6373, 6374

PART NUMBER: M4130N-TD-DDD-W-TTT WHERE: "D,DDD" = OUTER DIAMETER (IN INCHES)
AND ".TTT" = WALL THICKNESS (IN INCHES)

DIA. WALL

EG. 3/4" TUBING WITH .035" WALL = M4130NT0.750W.035

RELEASE
2012-04-16

B	REFORMAT DWG TO ACCOMMODATE ADDITIONAL TUBE DIAMETERS AND WALL THICKNESS	RP	12.04.02
A	NEW ISSUE	JB	01.05.16
REV	DESCRIPTION	BY	DATE
DESIGN	JB		
DRAWN	RP		
CHECKED	AP		
MFG. APPR.	M4130N-T		
APPROVED			
DE APPR.			
DATE	12.04.02		
DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA		REV. B SHEET 1 OF 1	
TITLE STEEL TUBING		SCALE NTS	
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MATERIAL RECEIPT INSPECTION FORM

MATERIAL: M6061+610625W.065
 DATE: APR 26 2019

PO / BATCH NO: 039654/5065706

MATERIAL CERT REC'D: yes
 QUANTITY RECEIVED: 24'
 QUANTITY INSPECTED: 24'
 QUANTITY REJECTED: 0

THICKNESS ORDERED: W.065
 THICKNESS RECEIVED: W.065
 SHEET SIZE ORDERED: N/A
 SHEET SIZE RECEIVED: N/A

DESCRIPTION	NCR (Check Y/N)	COMMENTS
SURFACE DAMAGE	Y <input checked="" type="radio"/> N <input type="radio"/>	
CORRECT FINISH	Y <input checked="" type="radio"/> N <input type="radio"/>	
CORROSION	Y <input checked="" type="radio"/> N <input type="radio"/>	
CORRECT GRAIN DIRECTION	Y <input checked="" type="radio"/> N <input type="radio"/>	
CORRECT MATERIAL PER M-DRAWING	Y <input checked="" type="radio"/> N <input type="radio"/>	W/W-T-700/6
CORRECT THICKNESS	Y <input checked="" type="radio"/> N <input type="radio"/>	
PHOTO REQUIRED	Y <input checked="" type="radio"/> N <input type="radio"/>	
CORRECT REF # TO LINK CERT	Y <input checked="" type="radio"/> N <input type="radio"/>	Heat # P002636470001
CORRECT MATERIAL IDENTIFICATION	Y <input checked="" type="radio"/> N <input type="radio"/>	
CORRECT M# ON THE MATERIAL	Y <input checked="" type="radio"/> N <input type="radio"/>	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y <input type="radio"/> N <input checked="" type="radio"/>	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y <input type="radio"/> N <input checked="" type="radio"/>	

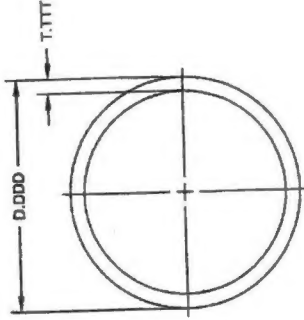
CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

QC 18 INSPECTION	ENGINEERING SIGNOFF (if required)
INSPECTED BY: <u>DAS</u> <u>11</u> DATE: <u>9-89 APR 26 2019</u>	SIGNED OFF BY: _____ DATE: _____

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

RELEASED
R 2013-07-02



PURCHASE MATERIAL: 6061-T6/T62/T6510/T6511 SEAMLESS TUBING

SPECIFICATION:

WW-T-700/B
OR QQ-A-20078 OR QQ-A-225/B
OR AMS 4080 OR AMS 4082 OR AMS 4083
OR ASTM B210 OR ASTM B241

PART NUMBER:

M6061T6TDDDDWTTT
OD | WALL

WHERE "D.DDD" = OD IN INCHES
"T.TTT" = WALL THICKNESS

EG. 3/8" OD X 0.058 WALL = M6061T6T0.375W0.058

MATERIAL TOLERANCE:

PER ANSI H35.2 ∇ C

C	COMPLETE REFORMAT. ADDED T6510 & T6511. ADDED AMS 4083, ASTM B210 & ASTM B241 ADDED MATERIAL TOLERANCE	AJS	13.06.12
B	ADD QQ-A-20078 & QQ-A-225/B	CP	04.01.23
A	NEW ISSUE	DS	01.06.21
REV.	DESCRIPTION	BY	DATE
DESIGN	AJS		
DRAWN	AJS		
CHECKED			
MFG. APPR.			
APPROVED			
DE APPR.			
DATE	13.06.12		

DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
REV. C	SHEET 1 OF 1
DRAWING NO.	M6061T6T
TITLE	6061-T6 TUBING
SCALE	NTS
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MATERIAL RECEIPT INSPECTION FORM

MATERIAL: M6061T6 to 500W.049
 DATE: APR 26 2018

PO / BATCH NO.: 039654/5065705

MATERIAL CERT REC'D: yes
 QUANTITY RECEIVED: 108'
 QUANTITY INSPECTED: 108'
 QUANTITY REJECTED: 0

THICKNESS ORDERED: W.049
 THICKNESS RECEIVED: W.049
 SHEET SIZE ORDERED: N/A
 SHEET SIZE RECEIVED: N/A

DESCRIPTION	NCR (Check Y/N)	COMMENTS
SURFACE DAMAGE	Y (N)	
CORRECT FINISH	(Y) N	
CORROSION	Y (N)	
CORRECT GRAIN DIRECTION	(Y) N	
CORRECT MATERIAL PER M-DRAWING	(Y) N	NW-T-700/6
CORRECT THICKNESS	(Y) N	
PHOTO REQUIRED	Y (N)	
CORRECT REF # TO LINK CERT	(Y) N	Heat # 002552620001
CORRECT MATERIAL IDENTIFICATION	(Y) N	
CORRECT M# ON THE MATERIAL	(Y) N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y (N)	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y (N)	

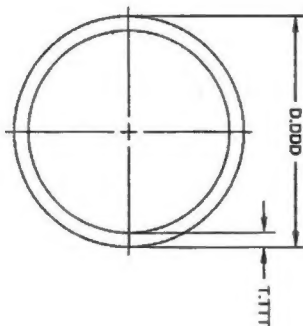
CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

QC 18 INSPECTION	ENGINEERING SIGNOFF (if required)
INSPECTED BY: <u>DAS</u> <u>11</u>	SIGNED OFF BY: _____
DATE: <u>9-89 APR 26 2018</u>	DATE: _____

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

PURCHASE MATERIAL: 6061-T6/T62/T6510/T6511 SEAMLESS TUBING
 SPECIFICATION: $\triangle C$ WML-17008
 OR QQ-A-200/8 OR QQ-A-225/8
 OR AMS 4080 OR AMS 4082 OR AMS 4083
 OR ASTM B210 OR ASTM B241
 PART NUMBER: M6061T6T D.DDDQ/W.T.TTT $\triangle C$
 WHERE "D.DDD" = OD IN INCHES
 "T.TTT" = WALL THICKNESS
 MATERIAL TOLERANCE: EG. 3/8" OD X 0.058 WALL = M6061T6T0.375W0.058
 PER ANSI H35.2 $\triangle C$



RELEASED
 2013-07-02
 MP

C	COMPLETE REFORMAT, ADDED T6510 & T6511, ADDED AMS 4083, ASTM B210 & ASTM B241	AMS	13.06.12
B	ADD QQ-A-200/8 & QQ-A-225/8	CP	04.01.23
A	NEW ISSUE	DS	01.06.21
REV.	DESCRIPTION	BY	DATE
DRAWN	AMS		
CHECKED	AMS		
MFG. APPR.	M6061T6T		
APPROVED	TITLE		
DE APPR.	6061-T6 TUBING		
DATE	13.06.12		

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 HAMMERSBURG, ONTARIO, CANADA
 REV. C
 SHEET 1 OF 1
 SCALE
 NTS
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